Fertility and Family Planning Differentials among Social Groups in India

Dewaram A. Nagdeve*[1] and Prashant B. Dongardive[2]

Abstract: India has almost achieved replacement level fertility but considerable fertility and family planning use differentials that exist among social groups. Therefore, we aimed to examine the fertility and family planning differentials among social groups in India. The data has been analyzed from the fourth National Family Health Survey (NFHS 4) conducted during 2015-2016 in India. The data analysis has been done by using bi-variate, logistic regression, and multiple classification analyses to observe the association between each of the dependent and independent variables. The analysis reveals that fertility and family planning differentials exist among social groups in India. The scheduled caste, scheduled tribe, and other backward class women have exhibited higher fertility and lower contraceptive use than other women. Multivariate analyses on cumulative fertility and contraceptive use show that differentials exist between the social groups even after controlling for the other socioeconomic and demographic variables. The rural areas are lagging behind urban areas, but the gap is narrowing at higher levels of socioeconomic status. There is a negative relationship between education and fertility. The use of the family planning method significantly increases with the age of the women, marital duration, and household wealth index.

Keywords: Fertility, Family planning, Differentials, Social groups, India.

Introduction and Review of Literature

India has almost achieved replacement level fertility, but considerable fertility and family planning use differentials that exist among social groups. The fertility declined from about six births per woman in the 1960s and 1970s to 2.2 births per woman in 2015-16 and the use of family planning has increased from 13 percent in 1971 to 54 percent in 2015-16 (IIPS and ICF, 2017). The fertility decline occurred in almost all sections of society- rich and poor, literate and non-literate, Hindus and Muslims, upper caste and lower caste (Visaria and Visaria, 1994; James, 1999; James and Nair, 2005). The pace of fertility declines and increases in contraceptive use and is not uniform across caste groups in India.

India has registered higher fertility among scheduled castes compared to non-scheduled castes. 'Scheduled castes' is a formal government classification of communities within India that have traditionally been associated with underprivileged living. Whereas, the 'non-scheduled castes' tend to lead a privileged life, typically urbanite, and literate. The natural forces that govern the fertility behavior of these socio-economic classes experience elsewhere outside India that, the poor tend to record higher total fertility than the rich do. Though fertility has declined, the differentials are persisted among the social groups in India (Pallikadavath and Wilson, 2005; Gandotra, et al., 1998).

*Corresponding Author
[1] Professor and Head, Department of Fertility Studies, International Institute for Population Sciences, Mumbai. Email: dnagdeve@iips.net
[2] Research Scholar, International Institute for Population Sciences, Mumbai. Email : prashantbhimrao@gmail.com

There are many studies, which have shown that fertility varies or is affected by socio-economic variables, health, and family planning acceptance. Apart from rural-urban differentials other variables, which reveal the differentials, are religion, caste, occupation, and literacy. As specific lower castes/caste groups tended to have fixed occupations, the analysis by castes and higher occupation reveals the same pattern; similarly, higher castes and higher occupational groups have higher literacy percentages, which also was associated with their fertility inversely (Kurup, 1975). In their study on fertility trends and differentials in Andhra Pradesh, the researchers showed the fertility differentials by individual characteristics, such as education, religion, caste, and occupation. A strong negative association was observed between the educational level of women and fertility, both in rural and urban areas (Ramchandran and Ramesh, 2005). The results from the analysis of interaction effects showed a strong interaction between caste and residence on cumulative fertility. The difference is wider in rural areas and the gap narrows and converges in urban areas (Ramesh, 2007).

Fertility has been much higher in the case of Scheduled Caste (SC), Scheduled Tribe (ST), and other backward class (OBC) women as compared to that of other caste women whereas contraceptive use has been lowered among SC, ST, and OBC women than women of other caste have. According to the Fourth National Family Health Survey (NFHS-4), conducted in 2015–2016, the total fertility rate is 0.55 children higher among ST women, 0.33 children higher among SC women, 0.29 children higher among OBC women, than among women in the other castes (1.93). The use of any modern method is lower 45 percent among ST women, 49 percent among SC women, 47 percent among OBC women, as compared to 50 percent among women in the other castes (IIPS and ICF, 2017). Fertility and family planning use of couples has influenced by their own socio-economic characteristics. Therefore, we aimed to examine the fertility and family planning differentials among social groups in India.

Data and Methods

The data have been used from the National Family Health Survey (NFHS), which is an ongoing sociodemographic health survey conducted by International Institute for Population Sciences, Mumbai, and has until now completed four rounds. NFHS is a large-scale multi-round survey, which has been conducted, in a representative sample of households throughout India. The surveys provide national and state information on fertility, infant and child mortality, and practice of family planning along with other socio-economic characteristics. All the ethical protocols including individual consents have been obtained before seeking a response to a set of questions on fertility and the use of family planning. Individual and household-level background characteristics have been used to show fertility and family planning differentials among social groups in India. Data collection has conducted in two phases from 20 January 2015 to 4 December 2016, from a total representative sample of 628900 households and 723875 eligible women aged 15-49 years. Out of 723875 eligible women, 699686 ever-married women and 499627 currently married women interviewed. The household response rate was 97.6 percent and eligible women's response rate was 96.7 percent. The details of the study design as well as the sampling frame and sample implementation have been provided in the NFHS report (IIPS and ICF, 2017). The NFHS-4 data provides information on caste/tribe and most of the women belonged to one of the four caste groups, namely, scheduled caste (SC), scheduled tribe (ST), other backward class (OBC), and those who are neither SC nor ST nor OBC and are designated as "other castes". Four caste groups

have grouped into three categories of social groups for further analysis. They have scheduled castes/scheduled tribes, other backward class, and other castes. Out of 499627 currently married women, 89700 are SC and 86896 are ST (176596 SC/ST), 199151 belong to OBC and 101090 are other castes.

Analysis

The analysis of data has done by using bivariate and logistic regression analysis to observe the association between each of the dependent and independent variables. To estimate the magnitude of net differentials after controlling or adjusting for the effects of other socio-economic and demographic characteristics multivariate analysis has been carried out. First, the net effect of caste on cumulative fertility is estimated using the technique of multiple classification analysis (MCA), where the mean number of children ever born as the dependent variable. In addition to the caste variable following, other socio-economic and demographic variables have been used as independent variables to test the characteristics hypothesis. They are the age group, age at first intercourse, marital duration, place of residence, education, and family wealth Index.

Results and Discussion

The pattern of childbearing among social groups in India
The actual childbearing performance gives an idea for the preference of small family among scheduled castes, scheduled tribes, other backward class, and other castes of women in India. The distribution of eligible women by the number of living children among scheduled castes/scheduled tribes, other backward class, and other castes of women in India has given in Table 1. It is found that 29 percent of the currently married women had two children, 21 percent had three children, and 23 percent had more than four children among currently married women of SC/ST. Thirty- three percent of the currently married women had two children followed by 46 percent had three children and 47 percent had more than four children. In the case of other castes women, 37 percent of currently married women have two children followed by 18 percent who have three children and 10 percent have more than four children. It may also be noticed that around 82 percent of women in India have three or less than three living children, 77 percent of women among SC/ST, 80 percent of the women among OBC, and 86 percent of women among other castes have three or less than three living children.

Table 1**:** Percentage distribution of eligible women by number of living children among social groups in India, 2015-16

No. of living children	SC/ST	OBC	Other castes	Total
0	10.2	9.9	9.8	10.0
1	16.8	17.2	21.1	18.0
2	29.0	33.1	36.8	32.7
3	21.1	19.8	18.0	19.8
4+	22.9	9.9	9.8	10.0
Percent	37.0	41.8	22.2	100
Total no. of women	**176596**	**199151**	**101090**	**476837**

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

3

Table 2: Mean number of children ever born (MCEB) among social groups by background characteristics of currently married women in India, 2015-16

Background characteristics	SC/ST	OBC	Other castes	Total	Total number of women
Age-group					
15-19	0.4	0.3	0.4	0.4	15995
20-24	1.2	1.1	1.1	1.2	73941
25-29	2.1	2.0	1.7	2.0	95595
30-34	2.7	2.6	2.3	2.6	85859
35-39	3.1	3.0	2.7	3.0	79440
40-44	3.5	3.4	2.9	3.4	65754
45-49	3.7	3.4	3.0	3.4	60253
Age at the consummation of the marriage					
<18	2.9	2.7	2.6	2.7	200388
18 and above	2.1	1.8	1.7	1.8	276440
Marital Duration					
<5	0.7	0.8	0.7	0.7	91538
5-9	2.0	1.9	1.8	1.9	86407
10-14	2.6	2.5	2.3	2.5	79273
15 and above	3.4	3.2	2.8	3.2	219619
Residence					
Urban	2.2	2.0	1.8	1.9	133249
Rural	2.6	2.3	2.1	2.4	343588
Women's education					
Illiterate	3.3	3.3	3.3	3.3	165378
0-9 years	2.2	2.3	2.3	2.2	180036
10+years	1.5	1.6	1.6	1.6	131423
Household wealth index					
Poor	2.9	3.0	2.8	2.9	174461
Medium	2.3	2.4	2.3	2.3	157830
Rich	2.1	2.0	1.9	2.0	144546
Total	**2.5**	**2.4**	**2.2**	**2.4**	**476837**

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

Differentials in the mean number of children ever born among social groups in India

The mean number of children ever born (MCEB) is one of the cohort measures used in fertility analysis. The children ever born to currently married women of reproductive ages may indicate the actual childbearing performance of the population. The MCEB among social groups by background characteristics of currently married women in India has presented in Table 2. The analysis revealed that the MCEB in India is 2.4 and it is highest at 2.5 among SC/ST followed by OBC (2.4) and lowest among other castes (2.2). In the case of 40 and above the age group of women the MCEB has found to be 3.4 and it is highest 3.7 among SC/ST as compared to 3.4 among OBC and lowest 3 among other castes in India. The MCEB by age at first intercourse of less than 18 years women has found to be higher 2.7 than 1.8 for 18 years and above. The group of women with less than 10 years of marital duration would reflect the current preferences and trends of childbearing. The MCEB by the marital duration of less than 10 years is 2.7 among SC/ST and 2.7 for OBC and 2.5 for women of other castes. Women with longer marital duration have higher MCEB. On average, women who are married for more than 15 years have 3.4, 3.2, and 2.8 mean numbers of children ever born among SC/ST, OBC, and other castes respectively.

The MCEB is higher in rural areas as compared to urban areas among all the social groups in India. The MCEB declines gradually with increases in the level of mother's education. The MCEB for 10 years of schooling and above3is 1.5 among SC/ST, 1.6 among OBC, and 1.6 among other castes whereas the MCEB in case of illiterate is found to be 3.3 among SC/ST, 3.3 among OBC, and 3.3 among other castes. The difference in MCEB declines with the increase of mother's education among all the social groups. The MCEB decline significantly for mother's education indicates its importance. The women having exposure to mass media are having lower MCEB as compared to women who are not having exposure to mass media among all social groups. The MCEB for women classified according to household family wealth index into poor, middle, and rich are 2.9, 2.3, and 2 respectively. Further, the MCEB decreases as the family wealth index increases among all the social groups but the MCEB is higher in the case of SC/ST than OBC and other castes. The MCEB varies for given variables indicates their significance among social groups in India.

Analysis of cumulative fertility: net effects of caste on children ever born in India
The fertility differentials by caste plausibly might be due to the differences in socio-economic factors (the characteristics hypothesis). Therefore, to ascertain whether any observed fertility differentials among the social groups has caused by variations in characteristics or are the effects of caste per se, an analysis of cumulative marital fertility (children ever born) has been done. Table 3 provides the unadjusted and adjusted relationship between caste and fertility along with other socio-economic variables and covariate. The results of multiple classification analysis show that the unadjusted deviations by caste were large, SC/ST women showing fertility above the average (2.63) by 0.14 and the other caste women below the average by 0.22. Results from Model 1 revealed that even after controlling for socioeconomic variables, the pattern of differentials exists, though the gap narrowed down. The adjusted mean number of children ever born for SC/ST and OBC continued to be above the average and for other castes were below the average. In Model 2, marital duration has been used as the covariate along with the socio-economic and demographic variables used in Model 1. In Model 2, also, the SC/ST women had higher fertility than the average and other castes and OBC difference was much smaller in comparison to that of other castes and SC/ST difference, even after adjustment. In other words, the unadjusted difference in the adjusted mean number of children ever born between SC/ST and other castes was 0.06 and the difference between OBC and other castes was 0.05. When the effects of other factors and covariate are controlled (Model 2), the difference in the adjusted mean number of children ever born between SC/ST and other castes 0.08, and the difference between OBC and other casts was 0.03, that is, the difference between adjusted means was close to that of unadjusted means. This indicates that the observed (unadjusted) differences have not been explained by the other socio-economic and demographic factors used in the analysis. Thus, the characteristics hypothesis does not gain support as far as SC/ST- other castes differentials are concerned, that is, higher than average fertility among scheduled castes/scheduled tribes has explained by their education but has not explained by relatively poor family wealth index. Between the other variables education, and family wealth index (both in Model 1 and Model 2, at different levels show a significant effect on fertility. In sum, results of both Model 1 and 2 presented in Table 3 show that SC/ST fertility was above the average and the differentials in cumulative fertility by caste exist even after controlling for other socioeconomic and demographic variables and covariates. Clearly, the characteristics hypothesis (controlling the socio-economic and demographic variables) alone does not explain differentials in cumulative marital fertility among social groups in India. Since child mortality, fertility desires, and behavior, that is, high infant mortality induces to have more children to ensure

the survival of at least a few in adulthood. Particularly, as the fertility level approaches replacement level fertility, the role of child mortality becomes increasingly important. Hence, it is desirable to include child mortality as an independent variable along with the socio-economic variables in the analysis of cumulative marital fertility. However, this was not possible to include child mortality as an explanatory variable in the multiple classification analysis of children ever born because children ever born and child loss has a reciprocal effect (Alagrajan and Kulkarni, 1998).

Table 3: Unadjusted and adjusted mean number of children ever born by caste/tribe and socio-economic and demographic variables, India, 2015-16

Variable/Category	No. of Cases	Unadjusted MCEB	Eta	Model 1 Adjusted MCEB	Beta	Model 2 Adjusted MCEB	Beta
Grand mean	**476837**	**2.49**					
Caste groups			0.078		0.013***		0.02***
Scheduled Castes/Scheduled Tribes	176596	2.63		2.51		2.53	
Other Backward Class	199151	2.49		2.50		2.48	
Other Castes	101090	2.27		2.45		2.45	
Age Group			0.5		0.013***		0.091***
15-19	15995	0.39		0.4		1.51	
20-29	169536	1.63		1.73		2.46	
30-39	165299	2.82		2.82		2.72	
40 and above	126007	3.49		3.37		2.37	
Place of residence			0.092		0.003		0.002
Urban	343588	2.59		2.49		2.49	
Rural	133249	2.25		2.50		2.51	
Education			0.407		0.240***		0.147***
Illiterate	164615	3.34		2.98		2.81	
Primary Complete	69722	2.68		2.61		2.52	
Secondary Complete	199398	1.97		2.22		2.31	
Higher Secondary and above	43102	1.39		1.73		2.1	
Wealth Index			0.209		0.128***		0.13***
Poor	174461	2.92		2.75		2.77	
Middle	157830	2.43		2.46		2.45	
Rich	144546	2.05		2.23		2.21	
				Multiple R = 0.594	$R^2 =$ 0.655	Multiple R=0.713	$R^2 =$ 0.429

Notes: MCEB is the predicted mean number of children ever born based on a model for currently married women age 15-49 only.

Model 1: Adjusted for independents (for socio-economic and demographic variables)

Model 2: Model 1 + covariate (marital duration)

Level of significance ***=P<0.01, **=P<0.05 and *=P<0.1

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

Table 4: Mean number of children surviving (MCS) and the mean number of child loss (MCL) among social groups by background characteristics of currently married women in India, 2015-16

Background characteristics	SC/ST		OBC		Other castes		Total		Total number of women
	MCS	MCL	MCS	MCL	MCS	MCL	MCS	MCL	
Age-group									
15-19	0.4	0.0	0.3	0.0	0.4	0.0	0.4	0.0	15995
20-24	1.2	0.1	1.1	0.1	1.0	0.0	1.1	0.1	73941
25-29	2.0	0.1	1.9	0.1	1.7	0.1	1.9	0.1	95595
30-34	2.5	0.2	2.4	0.2	2.1	0.1	2.4	0.1	85859
35-39	2.9	0.2	2.7	0.2	2.4	0.1	2.7	0.2	79440
40-44	3.2	0.3	3.0	0.3	2.6	0.2	2.9	0.3	65754
45-49	3.3	0.4	3.2	0.3	2.8	0.2	3.1	0.3	60253
Age at consummation of marriage									
=>18	2.5	0.3	2.7	0.2	2.5	0.2	2.5	0.2	200388
<18	1.8	0.1	1.7	0.1	1.7	0.1	1.7	0.1	276440
Marital Duration									
<5	0.7	0.0	0.7	0.0	0.7	0.0	0.7	0.0	91538
5-9	1.9	0.1	1.8	0.1	1.7	0.1	1.8	0.1	86407
10-14	2.5	0.2	2.4	0.1	2.2	0.1	2.3	0.1	79273
15 and above	3.1	0.3	3.0	0.3	2.7	0.2	2.8	0.3	219619
Place of residence									
Urban	1.9	0.1	1.9	0.1	1.9	0.1	1.9	0.1	133249
Rural	2.2	0.2	2.2	0.2	2.2	0.1	2.1	0.2	343588
Women's education									
Illiterate	2.7	0.3	2.8	0.3	2.8	0.3	2.8	0.3	165378
0-9 years	2.1	0.1	2.1	0.1	2.0	0.1	2.1	0.1	180036
10+years	1.5	0.1	1.5	0.0	1.6	0.0	1.4	0.0	131423
Household wealth index									
Poor	2.3	0.3	2.5	0.3	2.4	0.2	2.4	0.3	174461
Medium	2.1	0.1	2.0	0.2	2.1	0.1	2.1	0.1	157830
Rich	1.8	0.1	1.8	0.1	1.7	0.1	1.7	0.1	144546
Total	**2.3**	**0.2**	**2.2**	**0.1**	**2.1**	**0.1**	**2.3**	**0.1**	**476837**

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

Differentials in Mean Number of Children Surviving and Mean Number of Child Loss among Caste Groups in India

The differentials in the mean number of children surviving (MCS) and mean number of child loss (MCL) among social groups by socioeconomic and demographic characteristics of currently married women in India has given in Table 4. The MCS and MCL in India are 2.3 and 0.1 respectively. The MCS is 2.3, 2.2, and 2.1 while MCL has found to be 0.2, 0.1, and 0.1 among SC/ST, OBC, and other castes respectively. This indicates that SC/ST women had experienced a higher proportion of MCL than OBC and other castes. There is no child loss in the age group 15-19 but MCL varies from 0.1, 0.1, and 0.0 for women in the age group 20-24 to 0.4, 0.3, and 0.2 for women in the age group 45-49 indicating the extent of MCL experienced by an older cohort of women among SC/ST, OBC, and other castes respectively. The MCS and MCL by age at first intercourse of less than 18 years women is found to be 2.5 and 0.3mong SC/ST; 2.7 and 0.2 among OBC, 2.5 and 0.2 among other castes while for 18 years and above is 1.8 and 0.1 among SC/ ST; 1.7 and 0.1 among OBC and 1.7 and 0.1 among other castes. Similarly, this difference increases

with age and marriage duration. Women with longer marital duration have higher MCS and MCL. The MCS and MCL are lowest for women less than 10 years of marital duration and are highest for more than 15 years of marital duration. There is a positive relationship between MCS and MCL among all the caste groups. The higher MCS and MCL are observed in rural areas than in urban areas. The MCS and MCL are higher among SC/ST than OBC and other castes in both rural and urban areas. It has also been observed that the difference in MCS and MCL declines with the increase in the level of women's education among all the social groups. The decline of MCS and MCL with the increase in women's education indicates the importance of education in child survival. The lowest MCS and MCL have been found among women with exposure to mass media and the highest MCS and MCL among women who are not having exposure to mass media. The highest MCS and MCL have found among women of households with poor wealth index category and lowest MCS and MCL among women of households with rich family wealth index category.

Table 5: Percentage of currently married women age 15-49 years who know any contraceptive methods among social groups in India, 2015-16

Method	SC/ST	OBC	Other castes	Total
Any method	99.7	99.1	99.4	99.0
Any modern method	99.7	99.0	99.4	99.0
Any modern spacing	97.2	92.4	96.3	92.8
Any sterilization	97.2	98.0	98.3	97.8
Any traditional method	63.7	63.4	71.1	65.3
Female sterilization	97.3	98.0	98.3	97.8
Male sterilization	81.8	85.3	88.5	85.0
IUD	71.3	76.7	83.7	76.7
Pills	85.5	87.2	93.3	88.3
Injectable	68.5	74.4	77.8	73.4
Condom	78.5	81.1	89.4	82.2
Rhythm/periodic abstinence	52.5	53.8	61.2	55.1
Withdrawal	50.9	50.3	59.2	52.9
Total number of women	**176596**	**199151**	**101090**	**476837**

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

Differentials in the knowledge of family planning methods among social groups in India

The lack of knowledge of various contraceptive methods can be an obstacle to promote the use of contraceptive methods among couples. An attempt has been made to examine the knowledge of family planning methods to currently married women among social groups in India (Table 5). It has been revealed from the table that the knowledge of any family planning method including any modern family planning method is universal in India and it does not vary much among social groups. Female sterilization is the most widely known method followed by pill, IUD, male sterilization, condom, and injectable among all the social groups. Overall 98 percent of currently married women are aware of female sterilization and 85 percent knew male sterilization. There is no much difference in knowledge of female sterilization among social groups but the knowledge of male sterilization varies from 82 percent among SC/ST women followed by 85 percent among OBC women and 89 percent among other caste women. There are differentials in the knowledge of spacing methods such as Pills, IUD, and condom users among social groups. The best-known spacing methods are pills (88 percent), condom (82 percent), IUD (77 percent), and injections (73 percent). There is a large differential in the knowledge of spacing methods among women of social groups. Seventy-nine percent of women among SC/ST, 81 percent of women among OBC as

8

compare to 89 percent of women among other castes know condoms. The modern spacing methods, Pills, and IUD are known by 86 and 71 percent of SC/ST women, 87 and 77 percent of OBC women while the corresponding figures for other castes women are 93 and 84 percent respectively. The knowledge of these spacing methods remains low as compared to the knowledge of sterilization. Sixty-five percent of women in India are aware of traditional methods including withdrawal method, contraceptive herbs, rhythm/periodic abstinence, and other contraceptives of Indian system of medicine and this proportion varies among social groups from lowest 63 percent of women among OBC, 64 percent of women among SC/ST, to highest 71 percent of women among other castes.

Table 6: Percentage of currently married women (age 15-49 years) use contraceptive methods among social groups in major states of India, 2015-16.

States	SC/ST	OBC	Other castes	Total
Andhra Pradesh	64.7	71.2	71.1	8003
Arunachal Pradesh	27.2	44.8	60.1	9625
Assam	53.5	52.8	52.9	16466
Bihar	21.7	25.0	26.0	35046
Chhattisgarh	50.9	63.2	60.7	17102
Gujarat	47.6	47.3	46.4	16542
Haryana	64.9	64.3	62.4	16198
Himachal Pradesh	58.5	53.6	57.1	7282
Jammu And Kashmir	51.7	56.3	55.7	8907
Jharkhand	32.8	45.1	45.4	21283
Karnataka	52.9	52.6	53.7	17036
Kerala	57.1	53.2	55.4	7716
Madhya Pradesh	50.2	52.5	52.7	45492
Maharashtra	63.7	67.0	64.7	21288
Meghalaya	22.3	30.5	16.1	5240
Mizoram	34.8	44.9	10.0	6956
Odisha	55.6	59.8	57.7	23435
Punjab	75.5	74.8	76.5	13720
Rajasthan	57.1	60.0	64.5	30917
Tamil Nadu	53.7	52.9	54.8	20990
Tripura	64.3	67.5	66.7	3025
Uttar Pradesh	43.0	44.9	50.2	66231
Uttarakhand	51.5	48.0	58.2	11568
West Bengal	73.0	72.4	72.2	11240
Telangana	54.1	57.5	62.2	5505
India	**53.2**	**51.5**	**58.2**	**476837**

State wise differentials in use of family planning methods among social groups in India

Couples use family planning methods to increase the birth spacing and reduce fertility. The analysis has been made to understand the state wise differentials in use of contraceptive methods among different social groups in India (Table 6). Table shows the relatively low proportion of currently married women among SC/ST are using contraception in Bihar (21%), followed by Meghalaya (22%) and Jharkhand (32%) than the highest in Punjab (75%). The wide differentials in the use of contraceptive methods are found in major states of India among different social groups. Nearly 60 percent of the currently married women among other social groups are using contraceptive methods as compared to only half of the women among OBC, and this proportion is

lowest among SC/ST women. Punjab, West Bengal, Andhra Pradesh and Tripura show a relatively higher proportion of currently married women using contraceptive methods among all the social groups. Arunachal Pradesh shows wide difference in use of contraceptive methods among the social groups, this varies from the lowest 27 percent among SC/ST to the highest 60 percent among other caste women. There are wide differentials in the use of contraceptive methods among social groups in majority states in India.

Differentials in current use of family planning methods among social groups in India

The current use of family planning methods for currently married women among social groups in India has depicted in Table 7. Fifty-four percent of currently married women are currently using any family planning method. Current contraceptive use is higher among women of other castes (58 percent) as compared to women among SC/ST (54 percent) and OBC (52 percent). The current use of any modern methods of family planning is 48 percent in India. It varies from the lowest 47 percent of women among OBC to 48 percent of women among SC/ST and the highest 51 percent of women among other castes women. Female sterilization is the most widely used method followed by a condom, IUD/Loop/Copper T, and pills among all the social groups. Nearly 36 percent of currently married women and less than 1 percent of men has sterilized in India. Among the users of sterilization methods among social groups, most prefer female sterilization (38 percent) among SC/ST women and 36 percent of women each among OBC and other castes but it is not the case for male sterilization. Male sterilization is less than 1 percent in India and there is no much variation among social groups. There are differentials in the current use of spacing methods such as condom, Pill, and IUD/Loop/Copper T among social groups. The more used spacing methods are Condom (11 percent), Pill (4 percent), and IUD/Loop/Copper T (2 percent). There are differentials in the current use of spacing methods among social groups. The modern spacing methods, Condoms, Pills, and IUD/Loop/Copper T are used by 4, 4 and 1 percent of women among SC/ST; 9, 2 and 1 percent of women among OBC while the corresponding figures for women of other castes are 11, 4 and 2 percent respectively. The use of spacing methods remains low as compared to female sterilization. Only six percent of women are using traditional methods, varies from 5 percent each among SC/ST and OBC women to 7 percent of women among other castes.

Table 7: Percentage of currently married women age 15-49 years using any contraceptive methods among social groups in India, 2015-16

Method	SC/ST	OBC	Other castes	Number of women
Any family planning method	53.8	51.5	58.2	53.5
Any Modern Method	47.9	46.5	50.9	47.8
Any modern spacing	9.4	8.8	16.8	11.2
Any Sterilization	38.3	37.5	33.0	31.9
Male sterilization	0.4	0.2	0.2	0.3
Female sterilization	37.9	37.3	37.3	35.9
IUD/Loop/copper-T	1.2	1.4	2.2	1.5
Pill	4.0	2.4	5.7	4.1
Condom	4.2	9.3	17.6	10.8
Any Traditional Method	5.3	5.0	7.3	5.8
Withdraw	2.1	1.7	3.1	2.3
Rhythm	3.2	3.4	4.2	3.5
Total number of women	**176596**	**199151**	**101090**	**476837**

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

Table 8: Percentage of currently married women age 15-49 years currently using any family planning method and any modern method by background characteristics among social groups in India, 2015-16

Background characteristics	SC/ST		OBC		Other castes		Total		Total number of women
	Any method	Modern method	Any method	Modern method	Any method	Modern method	Any method	Modern method	
Age-group									
15-19	14.5	9.5	10.4	7.1	23.6	15.6	14.9	10.0	15995
20-24	29.3	24.1	25.0	20.3	35.0	28.1	28.9	23.6	73941
25-29	48.3	42.6	45.5	40.0	51.5	43.7	48.0	41.8	95595
30-34	63.7	57.7	60.2	54.4	64.9	56.8	62.2	55.7	85859
35-39	67.8	61.8	66.1	60.2	69.9	61.2	67.2	60.4	79440
40-44	65.8	61.0	64.9	59.9	68.8	61.7	65.9	60.3	65754
45-49	61.79	58.51	60.01	56.77	62.06	57.49	60.51	56.82	60253
Age at the consummation of the marriage									
<18	58.1	53.0	56.1	51.2	63.6	57.0	58.1	52.7	200388
18 and above	48.4	42.9	47.9	42.7	55.0	47.3	49.9	43.8	276440
Marital Duration									
<5	20.9	15.7	19.0	14.5	28.9	22.2	22.3	16.9	91538
5-9	46.1	40.5	43.9	38.2	53.3	44.6	46.9	40.5	86407
10-14	61.9	55.5	60.6	54.7	67.1	58.5	62.5	55.6	79273
15 and above	66.5	61.7	64.3	59.6	68.2	61.6	65.6	60.3	219619
Residence									
Urban	58.3	53.0	55.5	50.7	59.7	52.0	57.2	51.2	133249
Rural	51.6	46.3	49.6	44.4	57.0	50.0	51.7	46.0	343588
Women's education									
Illiterate	55.1	50.6	52.3	47.0	57.9	52.4	54.0	49.0	165378
0-9 years	54.5	48.4	54.8	49.8	61.5	54.1	56.2	50.2	180036
10+years	46.3	40.7	46.7	41.9	55.5	47.5	49.6	43.4	131423
Household wealth index									
Low	47.9	42.3	42.2	36.5	51.5	44.1	46.2	40.2	174461
Medium	57.4	52.5	54.5	49.7	58.8	51.4	56.2	50.6	157830
High	59.8	54.7	56.8	52.1	60.2	53.0	58.2	52.5	144546
Total	**53.2**	**47.9**	**51.5**	**46.5**	**58.2**	**50.9**	**53.5**	**48.0**	**476837**

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

After examination of the knowledge and use of family planning methods, it would be appropriate to see differentials in the use of family planning methods among social groups by socioeconomic and demographic characteristics of currently married women in India (Table 8). Fifty-four percent and 48 percent of currently married women in India are using any family planning method and modern method respectively. The current use of any family planning method and modern method is highest 58 percent and 51 percent among the women of other castes as compared to 53 percent and 48 percent of the women among SC/ST and 52 percent and 47 percent of the women among OBC respectively. The current use of any family planning method and any modern method among currently married women in the 15-19 years age group is 15 percent and 10 percent and this attains a peak at older ages. Similar age patterns of contraceptive use have also been observed among women of SC/ST, OBC, and other castes. The current use of any family

planning method and any modern method among currently married women by age at first intercourse of less than 18 years is higher 58 percent and 53 percent as compared to 50 percent and 44 percent for 18 years and above respectively. It is highest among the women of other castes as compared to OBC and SC/ST women. The current use of any family planning method and modern method increases by marital duration among all the social groups. The current use of any family planning methods and modern method is higher in urban areas (57 percent and 51 percent) than in rural areas (52 percent and 46 percent) respectively. It is highest among women of other castes than SC/ST and OBC women. The current use of any family planning method and modern method is also high among the women who have nine years of schooling (56 percent and 50 percent) than the illiterate women (54 percent and 49 percent) and least among more than 10 years of schooling (50 percent and 43 percent) respectively indicates that it is lowest among educated groups as compared to women who have nine years of schooling and illiterate. A similar picture has been observed in the current use of any family planning method and modern method for currently married women among all the social groups. The current contraceptive use of any family planning method and modern method increasing for the family wealth index. The current contraceptive use of any family planning method and modern method has increased the prevalence rate from 46 percent and 40 percent to 58 for women belonging to poor household family wealth index to 56 percent and 51 percent for women belonging to medium household family wealth index and 58 percent and 53 percent for women belonging to rich household family wealth index. It has further found that the current use of any family planning method and modern method is highest among women of other castes than SC/ ST and OBC women in case of poor and medium and rich household family wealth index.

The logistic regression analysis has used to know the influence of socio-economic and demographic characteristics on the current use of any family planning method in India and results has depicted in Table 9. The analysis revealed that the use of any family planning method significantly increases among women of older age groups than among women in the age group 15-19 among all the social groups. The likelihood of the use of any family planning method decreases in case of age at first intercourse above 18 years.

In the case of marital duration, the likelihood of the use of any family planning method significantly increases as marital duration increases among all the social groups. The likelihood of use of any family planning methods increases in rural areas among OBC and SC/ST women whereas it increases among women of other castes in urban areas in India. The chance of use of any family planning method is highest among women schooling up to nine years of education, followed by women having more than 10 years of schooling as compared to illiterate.

A similar pattern for use of any family planning method has been found among women of all the social groups in India. The possibility of the use of any family planning method increases with increasing household family wealth index among women of all the social groups in India. A similar pattern has been found for the influence of socio-economic and demographic characteristics on the current use of any modern method of family planning in India (Table 10).

Table 9: Results of logistic regression (odds ratio) for current use of any family planning method in India, 2015-16

Variables	SC/ST	OBC	Other castes	Total
Age-group				
15-19®				
20-24	1.726***	2.010***	1.353***	1.691***
25-29	2.235***	2.869***	1.706***	2.284***
30-34	2.825***	3.382***	1.904***	2.708***
35-39	2.835***	3.631***	1.932***	2.799***
40-44	2.476***	3.258***	1.714***	2.500***
45-49	2.091***	2.621***	1.271***	1.973***
Age at consummation of marriage				
<18®				
18 and above	0.874***	0.911***	0.839***	0.876***
Marital Duration				
<5®				
5-9	2.710***	2.617***	2.402***	2.496***
10-14	4.337***	4.467***	3.897***	4.092***
15 and above	5.347***	5.311***	4.562***	4.895***
Place of residence				
Urban®				
Rural	1.006	1.044***	0.997***	1.014
Women's education				
Illiterate®				
0-9 years	1.358***	1.278***	1.347***	1.309***
10+years	1.095***	1.106***	1.192***	1.125***
Household wealth index				
Low®				
Medium	1.617***	1.770***	1.383***	1.557***
High	1.807***	1.961***	1.502***	1.694***
Constant	0.114***	0.065***	0.195***	0.109

Level of significance ***=P<0.01, **=P<0.05 and *=P<0.1

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

Table 10: Results of logistic regression (Odds ratio) for current use of any modern method, India, 2015-16

Variables	SC/ST	OBC	Other castes	Total
Age-group				
15-19®				
20-24	2.014***	2.231***	1.628***	1.958***
25-29	2.635***	3.242***	2.065***	2.664***
30-34	3.252***	3.721***	2.245***	3.057***
35-39	3.179***	3.910***	2.147***	3.042***
40-44	2.917***	3.646***	2.019***	2.841***
45-49	2.628***	3.179***	1.689***	2.448***
Age at consummation of marriage				
<18®				
18 and above	0.865***	0.894***	0.819***	0.858***
Marital Duration				
<5®				
5-9	2.971***	2.831***	2.365***	2.643***
10-14	4.501***	4.831***	3.795***	4.273***
15 and above	5.637***	5.885***	4.599***	5.272***
Place of residence				
Urban®				
Rural	1.002	1.046***	1.040***	1.026***
Women's education				
Illiterate®				
0-9 years	1.228***	1.283***	1.221***	1.237***
10+years	1.032	1.123***	1.054***	1.057***
Household wealth index				
Low®				
Medium	1.694***	1.852***	1.420***	1.617***
High	1.920***	2.067***	1.621***	1.779***
Constant	0.073***	0.041***	0.122***	0.070***

Level of significance ***=P<0.01, **=P<0.05 and *=P<0.1
Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

Table 11: Percentage of currently married women in 15-49 years by current use of any contraceptive method and any modern method according to surviving children among social groups in India, 2015-16

	SC/ST		OBC		Other castes		Total		
Background characteristic	**Any method**	**Modern method**	**Any method**	**Modern method**	**Any method**	**Modern method**	**Any method**	**Modern method**	**Total number of women**
Child Surviving									
0	7.2	4.9	6.3	4.5	12.2	8.6	7.9	5.5	49216
1	32.7	24.6	29.6	23.3	46.2	35.1	35.0	26.9	88851
2	65.4	60.3	65.9	61.4	71.2	64.3	67.1	61.9	152445
3+	65.5	60.5	61.9	56.0	66.3	59.9	64.0	58.3	49216
Child Surviving boy									
0	25.6	20.7	24.9	21.2	34.3	27.2	27.4	22.5	120073
1	58.3	52.1	56.7	51.1	64.8	56.5	59.2	52.8	190898
2+	68.2	63.7	65.7	60.3	70.2	64.3	67.4	62.2	165866
Child Surviving girl									
0	39.7	34.9	39.3	35.1	48.6	41.4	41.7	36.6	161,871
1	60.2	54.9	58.9	53.8	64.7	57.0	60.7	54.9	178,761
2+	59.8	54.2	57.0	50.9	62.32	55.4	59.0	52.9	136,205
Total	**53.2**	**47.9**	**51.5**	**46.5**	**58.2**	**50.9**	**53.5**	**48.0**	**476837**

Source: Author's calculation using NFHS-4 2015-16 dataset. Weights are used to estimates these values.

Current Use of Family Planning Methods by Number of Surviving Children to Women

The information on current contraceptive use by the number of surviving children, living sons, and daughters among social groups has presented in Table 11. It is crucial to understand the association between the number of living children and contraceptive use. The contraceptive use is high among the women who have two surviving children (64 percent for any method and 58 percent for modern method) invariably of methods and social groups in India. The use of any family planning method is 67 percent for the women who have two or more sons and are higher than the women who have two or more daughters (54 percent). The same trend has observed in the case of use of any modern method, which is 62 percent for the women who have two or more sons and is higher than the women who have two or more daughters (48 percent) and the similar trend has observed among all the social groups.

Summary and Conclusions

This paper has examined the fertility and family planning differentials among social groups in the context of socio-economic and demographic characteristics. The analysis reveals that fertility has declined almost to below replacement level fertility but fertility differentials exist among social groups. The scheduled castes/scheduled tribes have exhibited higher fertility than other backward class and other castes in India. The proportion of the currently married women having more than four children is higher among SC/ST than OBC and other castes. The high MCS and MCL have found among women of SC/ST than OBC and other castes. The difference in MCS and MCL declines with the education and family wealth index indicates their importance in child survival among all the social groups. There is a negative relationship between the mean number of children ever born, the mean number of children surviving, and education. The knowledge of any family planning method and any modern method is universal in India and it does not vary much among social groups. Current contraceptive use is higher among the women of other castes than among SC/ST and OBC women. Female sterilization is the most widely used method followed by IUD, condom, and pill among all the social groups. There are differentials in the current use of spacing methods among social groups. The current use of any family planning method is higher in urban areas than in rural areas. The current use of any family planning method increases by marital duration but it varies among the social groups. The current use of the family planning method is lower at younger age groups and this attains a peak at older age groups. Contraceptive use is high among the women who have three or more surviving children and this proportion is higher for the women who have two or more sons than the women who have two or more daughters invariably of methods and social groups in India. Multivariate analyses on cumulative fertility and contraceptive use show that differentials exist between the social groups even after controlling for the other socioeconomic and demographic variables. However, the analyses of interaction effects of caste and other socioeconomic factors on fertility and contraceptive use show that the caste factor is not constant across the levels of other socio-economic factors. The rural areas are lagging behind urban areas and at the lower levels of socioeconomic status but the gaps in differentials are narrowing in urban areas and at higher levels of socioeconomic status. Results of logistic regression analysis on the current use of any family planning method and any modern method showed differentials among social groups. The use of any family planning method and any modern method significantly increases with the age of the women, marital duration, and household wealth index in India. This indicates that the differences in fertility and contraceptive use between caste groups will disappear with the improvement of socio-economic status.

Policy Implications

The education of women has contributed to lower fertility. Therefore, the education of girls needs to be encouraged. Higher fertility among SC/ST was a major obstacle towards the development of norms regarding smaller family size. There, any attempt to reduce fertility should be implemented in conjunction with an attempt to decrease child loss. From these findings, it can be concluded that with the improvement of socioeconomic status, differentials in fertility among social groups will decline. This would entail a more widely dispersed development program, stressing wider improvements in conditions that influence fertility reduction. It will help to narrow the differentials in fertility among social groups in India.

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